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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,951	10/21/2005	Andrea Calcagno	09952.0005	6539
22852 7590 11/27/2007 FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER ELPENORD, CANDAL	
			ART UNIT 2616	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,951	Applicant(s) CALCAGNO ET AL.	
	Examiner Candal Elpenord	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>21 October 2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 17 and 32** are rejected under 35 U.S.C. 102 (b) as being anticipated by Reemtsma et al (US 2002/0009998 A1).

Regarding claim 17, Reemtsma et al. discloses, a radio telephony network (fig.2, Radio Communication System 1, recited in paragraph 0033 and paragraph 0001) supporting at least one link (fig. 1, path 8 A to B, recited in paragraph 0038, lines 1-12) of a radio channel ("radio transmission connection for packet switched data", recited in paragraph 0034, lines 16-23) for a packet data transmission service comprising: a plurality of network controllers (fig. 2, Radio Network Controllers, recited in paragraph 0035, lines 1-7), each network controller (fig. 2, RCN 6, recited in paragraph 0035, lines 1-13) being connected via an interface (fig. 4, "Iur and Iub" as interfaces, recited in paragraph 0046) to at least one base radio station (fig. 2, Radio Base Station 5, NB1, recited in paragraph 0034, lines 1-12) said base radio station (fig. 2, Radio Base Station 5, NB1, recited in paragraph 0034, lines 1-12) supervising at least one macrocell (fig. 1, recited in paragraph 0033 and "large radio cell", recited in paragraphs 0002-0003); and at least one base radio microstation (fig. 1, "at least one base station connected to each radio cell for controlling the set-up of connection", recited in paragraph 0033, paragraph

0034, lines 1-15) connected to the network controller (fig. 2, Radio Network Controllers, recited in paragraph 0035, lines 1-7) via an interface (fig. 4, "Iur and Iub" as interfaces, recited in paragraph 0046) of the same type as that connecting said base radio station (fig. 2, Radio Base Station 5, NB1, recited in paragraph 0034, lines 1-12) to the network controller (fig. 2, Radio Network Controllers, recited in paragraph 0035, lines 1-7), said at least one base radio microstation (fig. 1, "at least one base station connected to each radio cell for controlling the set-up of connection", recited in paragraph 0033, paragraph 0034, lines 1-15) supervising at least one microcell (fig. 1, recited in paragraph 0033, "the small radio cells", recited in paragraphs 0002-0003) incorporated in at least one macrocell ("large radio cells 3", recited in paragraph 0033) and centered at a point different from the point at which said macrocell ("large radio cells 3", recited in paragraph 0033) is centered, said at least one base radio microstation (fig. 1, "at least one base station connected to each radio cell for controlling the set-up of connection", recited in paragraph 0033, paragraph 0034, lines 1-15) providing said packet data transmission service ("data transmission via smaller radio cell", recited in paragraph 0013, lines 1-8 and paragraph 0021) in said microcell (fig. 1, recited in paragraph 0033, "the small radio cells", recited in paragraphs 0002-0003) on at least one link of said radio channel ("radio transmission connection for packet switched data", recited in paragraph 0034, lines 16-23).

Regarding claim 32, Reemtsma et al. discloses the network (fig.2, Radio Communication System 1, recited in paragraph 0033 and paragraph 0001), wherein the at least one link of the radio channel ("radio cell", recited in paragraph in paragraph

0019) is a down link (fig. 1 and fig. 4 for downlink, recited in paragraph 0033 and paragraph 0044-base station controls connection set and tear-down- signaling from the base station to user terminal is the downlink, recited in paragraph 0034).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 18-31** are rejected under 35 U.S.C. 103 (a) as being unpatentable over Reemtsma et al (US 2002/0009998 A1) in view of Li et al (US 6,940,827 B2).

Regarding claim 20, The network (fig.2, Radio Communication System 1, recited in paragraph 0033 and paragraph 0001), wherein each base radio microstation (fig. 1, "at least one base station connected to each radio cell for controlling the set-up of connection", recited in paragraph 0033, paragraph 0034, lines 1-15) comprises a central switch ("fig. 4, Common Switching element", recited in paragraph 0045-0046) and a plurality of access ports (fig. 2 and fig. 4, User Terminals 4, recited in paragraph 0034 and paragraph 0045-0046) connected to said central switch by a cable, **regarding claim 21**, the network (fig.2, Radio Communication System 1, recited in paragraph 0033 and paragraph 0001), wherein each base radio microstation (fig. 1, "at least one base station connected to each radio cell for controlling the set-up of connection", recited in paragraph 0033, paragraph 0034, lines 1-15) comprises a protocol structure (fig. 1, Network Controller 6, recited in paragraph 0006, lines 1-12 and paragraph 0035, lines 1-8 and "control platform of Radio Network Controller recited in paragraph 0044) including a first protocol level (fig. 4, Auxiliary Subsystem 24 (Processors which are physical devices), recited in paragraph 0045) and a second protocol level (fig. 4, Transport Subsystem 24, recited in paragraph 0045-0046) located above said first protocol level, said first protocol level being a physical level (fig. 4, Auxiliary Subsystem 24 (Processors which are physical devices), recited in paragraph 0045) and said second protocol level (fig. 4, Transport Subsystem 24, recited in paragraph 0045-0046))

being a data transmission level (fig. 4, Transport Subsystem-provides the switching, recited in paragraph 0045-0046), **regarding claim 28**, Reemtsma et al. discloses the network (fig.2, Radio Communication System 1, recited in paragraph 0033 and paragraph 0001) wherein said access control sub-level (fig. 5, MAC layer device, recited in paragraph 0044, lines 1-11) comprises a frame protocol (fig. 4, Control Platform comprises of interfaces and processors", recited in paragraph 0044-0045-"see one of the interfaces as the frame protocol) for controlling ("controlling radio cluster communications", recited in paragraph 0044-0045) the base radio microstation (fig. 1, "at least one base station connected to each radio cell for controlling the set-up of connection", recited in paragraph 0033, paragraph 0034, lines 1-15) and the network (fig.2, Radio Communication System 1, recited in paragraph 0033 and paragraph 0001), **regarding claim 29**, the network (fig.2, Radio Communication System 1, recited in paragraph 0033 and paragraph 0001), wherein said central switch (fig. 4, "Switching Element that provides access", recited in paragraph 0045-0046) comprises said logical entity ("MAC", recited in paragraph 0049, lines 1-11 and paragraph 0016) and said frame protocol (fig. 4, Control Platform comprises of interfaces and processors", recited in paragraph 0044-0045-"see one of the interfaces as the frame protocol) and each access port (fig. 2 and fig. 4, User Terminals 4, recited in paragraphs 0034 and paragraph 0046) comprises said first protocol level (fig.4, Transport Subsystem 26 that provides bi-directional transmissions", recited in paragraph 0045-0046 and "Ethernet Connection 23, recited in paragraph 0044), **regarding claim 30**, the network (fig.2, Radio Communication System 1, recited in paragraph 0033 and paragraph 0001),

wherein each network controller (fig. 2, RCN 6, recited in paragraph 0035, lines 1-13) comprises an access control sub-level ("Media Access Control medium/MAC", recited in paragraph 0049, lines 1-11 and paragraph 0016) and frame protocol (fig. 4, Control Platform comprises of interfaces and processors", recited in paragraph 0044-0045-"see one of the interfaces as the frame protocol) for controlling the transport between the network controller (fig. 2, RCN 6, recited in paragraph 0035, lines 1-13) and the base radio station microstation connected to it (fig. 2, Network Connection), **regarding claim 31**, the network (fig.2, Radio Communication System 1, recited in paragraph 0033 and paragraph 0001), wherein the at least one base radio microstation (fig. 1 and fig. 2, "at least one base station connected to each radio cell for controlling the set-up of connection", recited in paragraph 0033, paragraph 0034, lines 1-15) can provide the packet data transmission service ("packet data transmission or GPRS", recited in paragraph 0034, lines 16-24) to at least one user equipment (fig. 2, User Terminal UE1, recited in paragraph 0034, lines 1-16) in located in the microcell (fig. 1, recited in paragraph 0033, " the small radio cells", recited in paragraphs 0002-0003) served by the bas radio microstation (fig. 1 and fig. 2, "at least one base station connected to each radio cell for controlling the set-up of connection", recited in paragraph 0033, paragraph 0034, lines 1-15).

Reemtsma et al. discloses all the claimed limitation all with the exception of being silent with regard to the following features: **regarding claim 18**, the packet data transmission service by using a multi-carrier radio access, **regarding claim 19**, the multi-carrier access is of the OFDM type, **regarding claim 20**, the cable, **regarding**

claim 22, first protocol level comprises circuit components for processing a multi-carrier radio signal, said multi-carrier radio signal being formed from a plurality of radio carriers associated with data to be transmitted, **regarding claim 23**, wherein said circuit components for processing said multi-carrier radio signal comprise dedicated circuits and/or programmable DSPs, **regarding claim 24**, the data transmission level comprises an access control sub-level including a logical entity for controlling said multi-carrier radio access, **regarding claim 25**, the logical entity maps logical channels on transport channels, **regarding claim 26**, logical entity implements functions of retransmission of incorrectly received data packets, **regarding claim 27**, logical entity implements scheduling functions, **regarding claim 28**, wherein said access control sub-level controlling the transport of said multi-carrier radio signal between said base radio microstation and the network controller connected to it, **regarding claim 29**, wherein each access port comprises said first protocol level including said circuit components for processing said multi-carrier radio signal, **regarding claim 30**, controlling the transport of said multi-carrier radio signal within said network controller or between said network controller and the base radio microstation connected to it, **regarding claim 31**, a protocol structure including a physical level comprising circuit components for demodulating said multi-carrier radio signal.

However, Li et al (US 6,940,827 B2) in a similar field of endeavor discloses the following features: **regarding claim 18**, the packet data transmission service by using a multi-carrier radio access ("transmitting OFDM signals to subscriber", recited in col. 2, lines 45-50), **regarding claim 19**, the multi-carrier access ("multiple-subscribers of

OFDM", recited in col. 3, lines 57-62) is of the OFDM type (fig. 3 and fig. 4, OFDM Transmitter, recited in col. 5, lines 37-49 and "transmitting OFDM signals to subscriber", recited in col. 2, lines 45-50), **regarding claim 20**, the cable (fig. 4, chains , processing paths , recited in col. 6, lines 36-46), **regarding claim 22**, first protocol level (fig. 3 and fig. 4 which encompasses physical components) comprises circuit components (fig. 3 and fig. 4, Modulator 404, recited in col. 6, lines 36-58) for processing a multi-carrier radio signal ("processing of n subscribers communications", recited in col. 6, lines 36-58, fig. 3, OFDM Section), said multi-carrier radio signal "OFDM signal", recited in col. 5, lines 59-67) being formed from a plurality of radio carriers ("Use of frequency bands to receive and transmit", recited in col. 5, lines 50-58 and "subcarriers of OFDM", recited in col. 6, lines 1-20) associated with data to be transmitted (fig. 4, User Data 410, recited in col. 6, lines 47-53), **regarding claim 23**, wherein said circuit components ("processing logic", recited in col. 5, lines 29-360 for processing said multi-carrier radio signal ("process wireless signals in the form of OFDM", recited in col. 5, lines 42-49) comprise dedicated circuits and/or programmable DSPs ("software and dedicated logic", recited in col. 5, lines 29-36), **regarding claim 24**, the data transmission level (fig. 3 and fig. 4, Base Station that uses OFDM Transmitter, recited in col. 6, lines 36-46) comprises an access control sub-level ("Media Access Control/MAC", recited in col. 6, lines 36-46) including a logical entity (fig. 4, MUX as subcarrier allocator", recited in col. 6, lines 47-53) for controlling said multi-carrier radio access ("processing of n subscribers", recited in col. 6, lines 36-46) **regarding claim 25**, the logical entity ("logical unit", recited in col. 5, lines 8-17) maps logical channels ("mapping of clusters

to subcarriers", recited in col. 5, lines 8-17) on transport channels ("subcarriers", recited in col. 5, lines 8-17), **regarding claim 26**, logical entity (fig. 4, MUX 480, recited in col. 6, lines 53-67) implements functions of retransmission (fig. 4, FEC 402, recited in col. 6, lines 53-67) of incorrectly received data packets ("allow the receiver to correct user data", recited in col. 6, lines 53-67), **regarding claim 27**, logical entity (fig. 18, Cluster Allocation and Load Scheduling Controller, recited in col. 17, lines 13-27) implements scheduling functions ("load scheduling of user data", recited in col. 17, lines 13-27), **regarding claim 28**, wherein said access control sub-level ("media access control (MAC) layer", recited in col. 8, lines 1-5) for controlling (fig. 18, Control Admission Controller 1801, recited in col. 17, lines 13-42) the transport ("allocation", recited in col. 17, lines 13-42) of said multi-carrier radio signal ("OFDM signals", recited in col. 17, lines 13-42), **regarding claim 29**, wherein each access port (fig. 3, Communication System using OFDM-access points, recited in col. 5, lines 29-48) comprises said first protocol level (fig. 3, OFDM Transmitter or Receiver, recited in col. 5, lines 29-67) including said circuit components (fig. 3 and fig. 4, MUX 480, Modulators 404, IFFT 405 as the circuit components, recited in col. 6-7, lines 36-67 and 1-9) for processing said multi-carrier radio signal ("OFDM signals", recited in col. 5, lines 59-67), **regarding claim 30**, a frame protocol (fig. 3 and fig. 4, OFDM physical devices, recited in col. 5, lines 29-49) or controlling (fig. 18, Control Admission Controller 1801, recited in col. 17, lines 13-42) the transport ("allocation", recited in col. 17, lines 13-42) of said multi-carrier radio signal ("OFDM signals", recited in col. 17, lines 13-42), **regarding claim 31**, a protocol structure ("media access control (MAC) layer", recited in col. 8, lines 1-5) including a

physical level (fig.3, 4 and 5, Physical Layer devices such as the IFFT 505, recited in col. 7, lines 41-67) comprising circuit components (fig. 5, Demux 507, recited in col. 8, lines 1-5) for demodulating (fig. 5, Demodulator 504, recited in col. 7, lines 58-66) said multi-carrier radio signal ("demodulating of received OFDM signal", recited in col. 41-66). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Reemtsma et al. by using features as taught by Li et al. in order to provide integrated services between CDMA and OFDM which maximizes the system capacity (See col. 3, lines 38-62 for motivation).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ann et al (US 5,870,392), Dent et al (US 7,155,229 B2), Lindquist et al (US 2005/009531 A1), and Haberland et al (US 6,983,333 B2) are cited to show methods and system that are related to the claimed invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Candal Elpenord whose telephone number is (571) 270-3123. The examiner can normally be reached on Monday through Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Bin Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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CE

KWANG BIN YAO
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Kwang Bin Yao', is written over the printed name and title.